



**FINAL EXAMINATION**  
**SEMESTER II, SESSION 2016/2017**

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COURSE CODE : SKAA 4823  
COURSE : TRANSPORTATION PLANNING  
PROGRAMME : SKAW  
DURATION : 2 HOURS 30 MINUTES  
DATE : JUNE, 2017

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**INSTRUCTION TO CANDIDATES:**

1. ANSWER ANY FOUR (4) QUESTIONS FROM SIX (6) QUESTIONS
2. WRITE YOUR NAME, SECTION AND LECTURER'S NAME ON THE FRONT PAGE OF EVERY ANSWER'S BOOKLET
3. USE SEPARATE ANSWER BOOK FOR SECTION A, SECTION B, AND SECTION C
4. YOU ARE NOT ALLOWED TO REFER TO ANY NOTES
5. EQUATION ON PAGE 6 MAY BE USED TO SOLVE PROBLEMS IN SECTION B

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**WARNING!**

*Students caught copying/cheating during the examination will be liable for disciplinary actions and the faculty may recommend the student to be expelled from the study.*

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This examination question consists of ( 6 ) printed pages only.

**SECTION A**

Q1. (a) Transportation is responsible for the development of civilizations, changing the way people live and travel. The importance/role of transportation in modern society can be categorised into economics, social, political and environmental. Discuss these four (4) roles of transportation in the society.

*(18 marks)*

(b) Transportation system consists of three basic elements namely fixed facilities, flow entities and control systems. Discuss these three (3) elements.

*(7 marks)*

*(25 marks)*

Q2. (a) List four (4) major traffic problems in cities and explain how implementation of proper transport planning can be used to mitigate, reduce and solve each aforesaid problems.

*(12 marks)*

(b) Three (3) types of inventory need to be collected in transportation planning studies are transportation facilities, land use and economics activities. Define and explain these inventories in terms of (not limited to) data, their importance and suitable types of survey to be carried out.

*(13 marks)*

*(25 marks)*

**SECTION B**

Q3. (a) The Concentric Zone Model is one of the earliest theoretical models to explain urban social structures. Draw a neat diagram showing different zones in the Concentric Zone Model and briefly explain each of the zones identified.

*(10 marks)*

(b) A small study area is represented by six (6) zones. Develop a trip production equation and calculate  $R^2$  using the following data. Comment on the result.

Zone	1	2	3	4	5	6
Trip production	600	450	900	850	750	290
Car ownership	250	200	710	615	280	130

*(15 marks)*

*(25 marks)*

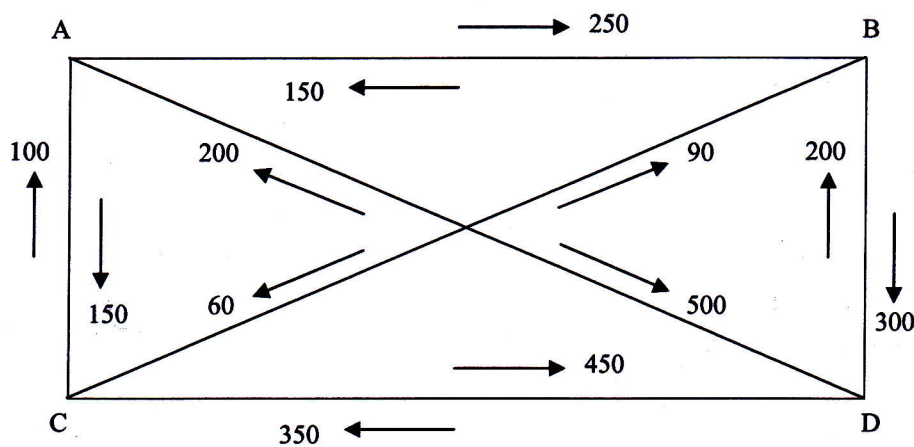
- Q4. (a) Give two (2) comments on the weakness of each uniform growth factor model and average growth factor model.

(5 marks)

- (b) From a simple network shown in **FIGURE 1**, determine the number of trips on each link using average growth factor model until iteration three (3).

Given:

Zone	Growth factor production	Growth factor attraction
A	3.0	1.2
B	2.5	1.5
C	2.0	3.0
D	1.6	2.4



**FIGURE 1**

(20 marks)  
(25 marks)

## SECTION C

Q5. (a) When traffic impact assessment should be required? (5 marks)

(i) List four (4) elements and briefly explain two (2) of the elements in traffic impact assessment. (10 marks)

(ii) Discuss the analysis of future scenario projection after the completion of any development in order to analyse the total impact due to the development. (10 marks)

(10 marks)

(25 marks)

Q6. (a) Briefly explain this statement “*When transport systems are efficient, they provide economic and social opportunities and benefits*”. (5 marks)

(b) FIGURE 2 shows that the economic opportunities are governed by transport in mode and technology. Briefly explain the development of transportation system to the economic opportunities. (10 marks)

(10 marks)

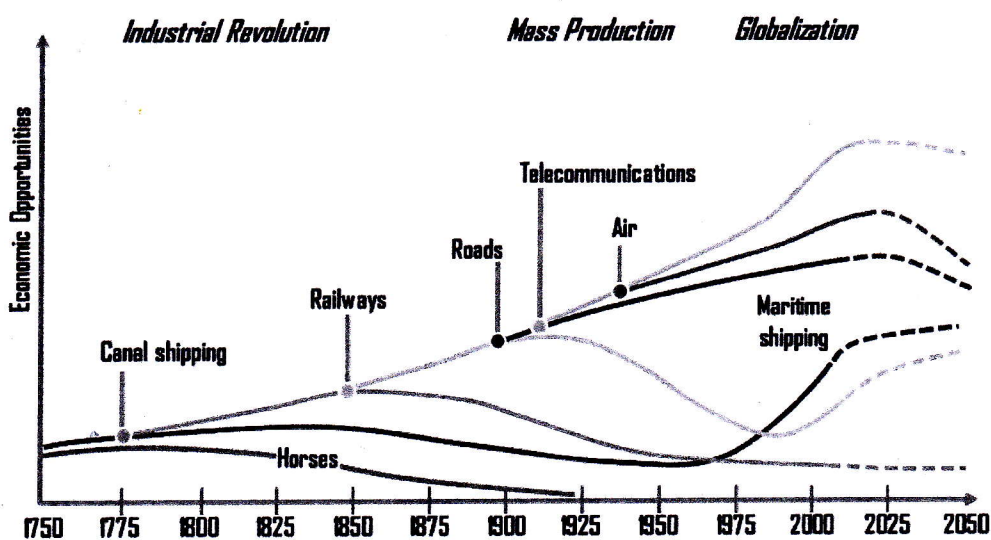


FIGURE 2 : Time, mobility and economic growth

- (c) Rail transportation system in Malaysia is rapidly growing. New rail networks are provided to integrate the existing rail networks and alleviate the severe traffic congestion. Discuss the roles of rail transportation system to the economic growth development.

*(10 marks)*

*(25 marks)*

**EQUATIONS**

The symbols indicate parameters usually used.

$$T_{ij} = t_{ij} \left( \frac{E_i + E_j}{2} \right),$$

$$Y_e = a + bX$$

$$b = \frac{\sum xy}{\sum x^2}$$

$$a = \bar{Y} - b\bar{X}$$

$$x = X - \bar{X}$$

$$y = Y - \bar{Y}$$

$$R^2 = \frac{\sum y_e^2}{\sum y^2}$$